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ERYTHRONIUM AMERICANUM



MAY, 1887.

THE FOES of plant-life abound. These foes consist not only of the large and the small of animal life, but, also, of a great variety of minute vegetable organisms which live upon and derive their nourishment from the higher forms of plants, and are familiarly known as different kinds of rusts, smuts and mildew. All these injure and destroy more or less of our cultivated plants. Cultivated plants are apparently more infested with parasites and predatory insects than wild ones, and undoubtedly they really are. Although the same insects and the same forms of fungi may attack a plant in its wild as in its cultivated state, yet from the fact that in the latter case large numbers of the plants are aggregated, so their foes are brought together within a small range, and we are enabled to perceive them, when in a wild state they would remain for the most part unnoticed; but that there is a numerical increase of individuals there can be no doubt, the changed conditions of the plants in various ways making them more attractive to their pests and more capable of supporting them.

Thus, while the farmer, the gardener and the fruit-grower increases his crops, he also makes more favorable the opportunities for their destruction. The attention of the successful cultivator can not, therefore, be confined to the mere

routine of the direct means of rearing and gathering his crops, but must also be directed with great care to the habits of those enemies which constantly threaten their injury and destruction.

At the commencement of another season of plant growth in this northern region, it may not be unprofitable to notice briefly some of the enemies of our garden, field and fruit crops, with the means that have been successfully employed to destroy them. Such notice must necessarily, at this time, be brief, but sufficient, we trust, to properly direct our readers, or to indicate methods, the particulars of which can be obtained elsewhere.

The Cabbage is one of the most important vegetables and its insect enemies are numerous and destructive. The following are probably the most prevalent and mischievous of them. Cut-worms, or larvæ of several species of insects, are often very troublesome when Cabbage plants are first set out. They work at night, and eat through the stem of the plants at the surface of the ground. Prof. RILEY has lured these creatures to their death, and it can be done every time. The method is to bait with poisoned leaves, laying them over the surface of the soil about ten or fifteen feet apart, covering the whole plat or field a few days before planting. The leaves to be

employed are those of Cabbage, Turnip, Lettuce or Clover; a tablespoonful of Paris green is mixed with a pail of water and kept well stirred. In these the leaves are dipped and then distributed over the ground; or the leaves can be moistened and then dusted with Paris green mixed with flour, in the proportion of one part of the poison to twenty of flour. Two such applications, three or four days apart, will clear the field of cut-worms.

The Cabbage worm, *Pieris rapæ*, the common green worm that feeds on the leaves of the growing plants, can be easily destroyed, and at little cost by the use of buhach, or Persian Insect Powder, or a particular preparation of it which is sold in the trade under the name of Insect Exterminator. This is applied in the dry form, blown on with a bellows adapted to the purpose.

The Cabbage Fly, *Anthomyia brassicæ*, which deposits its eggs on the stems of the young Cabbage plants, is often very troublesome. The maggots, when hatched out, work into and downwards through the stem, or groove along the bark, until they reach the root, upon which they feed, when the plant dies. One of the best remedies proposed is to scatter slaked lime, ashes, or coal dust around the stem of each plant, leaving a few plants, here and there through the field, unprotected, in order that the flies may visit them and lay their eggs. These plants the flies will seek out and leave the others untouched. The plants that have been visited will soon show the effects of the insects, and can then be pulled up and burned.

The squash-bug and the striped bug that injures the leaves of Cucumber and Melon vines, can both be kept from doing injury by the application of insect poison, or Insect Exterminator, to the leaves of the plants; it can be dusted on or be sprinkled on, mixed in water.

The squash-root borer is destroyed with saltpetre, an ounce to a gallon of water. Pour the solution on the soil about the plants soon after the young plants have come up, and repeat the operation two or three times after intervals of four or five days. This is a sure preventive. Some make the application only when the plant shows signs, by wilting, of being attacked; the remedy is

usually effective when thus employed, but it is better to use it in advance.

Turning now to the orchard and fruit garden, we may mention the fact, probably known to most of our readers, but which needs to be repeated and re-repeated until there is something like general practical attention given it—that the codlin moth, the pest of the Apple orchard—can be successfully destroyed by syringing the trees with Paris green and water soon after the blossoms have fallen and when the little Apples, newly formed, are held erect by their fruit stems, calyx end up. The moth lays its eggs in the calyx cavity, beginning even before the flower petals have fallen; the larvæ soon hatch out and begin to cut their way into the Apple. One application of the poisonous mixture is usually sufficient if given very soon after the blossoms fall. One pound of Paris green to fifty gallons of water is the proper proportion. The powder will mix better with the water if first wet up and stirred into a smooth paste. The liquid can be applied by means of a force pump made for this purpose. Public opinion should shape itself to regard as a misdemeanor the neglect to destroy codlin moth in this manner by any orchardist, or by any one having Apple trees in his garden.

The Apple aphid can be destroyed by kerosene oil made into an emulsion and mixed with water, the liquid thrown on in a fine spray with a force pump. The materials and implements should be ready beforehand, for this insect comes like a thief in the night, only not singly, but in myriads.

Vine growers, in regions where mildew often prevails, should make trial of the remedies for this purpose that were published in full in our last volume, page 213. Trials made in France have proved them to act as a preventive: 35 pounds of sulphate of copper is dissolved in 53 gallons of water, 33 pounds of quick lime is slaked in eight gallons of water; the lime and water mixture is then poured into the solution of copper. In using, keep the mixture well stirred. It can be applied to the foliage with a whisk broom. The treatment should be commenced soon after the foliage is well out, and be repeated so as to protect the later foliage. The quantities of the substances can be changed while preserving the proportions.

WINTER-BLOOMING CARNATIONS.

At this season of the year young plants of Carnation can be planted out in a rich place in the garden, to make their growth preparatory to blooming. These are plants that have been raised from cuttings, or, possibly, from seeds during the past winter. Of course, the general stock of these plants has been secured by cuttings



taken off in early winter from old plants of the best varieties. When one raises seedlings he can know what they are only when they have come into bloom, and this uncertainty does not favor keeping up a supply in this manner. The interest in obtaining new varieties is, however, sufficient to warrant one in frequently making sowings of seeds. Seedling plants, as a rule, have one great advantage over cutting-raised plants in the fact that they are far more vigorous, becoming larger, and having stronger shoots, and for the most part they bloom very freely. Seeds sown from the last of January to the middle of March will make plants large enough to put out this month. Some prefer to keep the plants in pots, and to plunge the pots in the soil in the garden. This course is a good one, but it requires

more care to watch the plants and see that they do not lack for water, as they are more apt to do than when turned out. The soil of the pots should be rich, to encourage a strong growth. As the plants grow, they will begin to show flower buds during the summer; these should not be allowed to open, but be pinched off, thus reserving the strength of the plants and turning it into the growth of new branches and shoots, and delaying the blooming season until winter. It will be proper to discontinue this disbudding early in August. By the latter part of the same month or the first of September, shift the plants into pots of larger size, or lift those that have been growing in the open ground, taking them with a ball of soil attached to their roots, and give them good-sized pots with rich soil. After this operation set the plants in a shady spot for a few days until they become established. They can now be kept for some weeks in cold-frames or pits, and afterwards be taken to the house as desired. Here they will need only a little care daily in watering, and, perhaps, from time to time supporting the branches by tying them to small sticks ;

one stick near the center of the pot is sufficient, and to this the main stem can be tied; it can also support any of the branches by strings, keeping them in a natural position. They want all the light they can have, and are fine window plants

if the atmosphere is kept sufficiently moist, otherwise troublesome insects may appear. The plants bloom most freely when in a temperature of 50° to 55° at night, with a corresponding increase during the daytime.

PLANTS FOR CEMETERY LOTS.

The embellishment of cemetery lots will occupy the attention of many persons this month, and the few suggestions here offered may possibly prove welcome to some. Plants to succeed well in a cemetery must be possessed of strong and vigorous constitution. They cannot be visited every day, and must be capable of withstanding at least temporary adverse conditions. A few hardy plants that will bear winter's cold and summer's heat are desirable, even if one should annually make a planting for the summer, for, as we are all aware, such attention may at any time be interrupted, or even wholly stopped, and then the hardy plants that hold their place will still indicate the love and care that placed them there. In order to produce the best effect, there should be of such hardy plants a sufficient number to ensure a succession of bloom from spring to autumn. Among the early blooming perennials the *Astilbe Japonica*, the *Dicentra spectabilis* and the double-flowered *Achillæa* are particularly desirable and appropriate. They are hardy, of pleasing foliage, and the flowers are abundant and beautiful. A little later in the season, some of the low-growing, flowering shrubs will come in. Of these the most desirable are the Double Flowering Plum-leaved *Spiræa*; the Lance-leaved *Spiræa*, or *S. Reevesii*, of both varieties, single and double; Golden-leaved *Spiræa*, with handsome yellow leaves and white flowers; Fortune's Dwarf White *Spiræa*, with white flowers in bloom most of the time during summer; *Deutzia*

gracilis, a low shrub, is hardy in most locations and bears a profusion of white blossoms; the Double Flowering *Deutzia*; the Double White Flowering *Deutzia*; and the Rose Flowered and White Flowered *Weigela*.

At the end of May, or early in June, in this region, the Chinese *Pæonies* come into bloom, and these are excellent plants for the cemetery; one can select varieties to suit the fancy, but none are more appropriate than the Double White and the fragrant pink varieties. Following next in blooming season are the *Roses*, and here is wide scope for choice among the hardy kinds. A good white variety is always inquired for for this purpose, and there is none better than *Madame Plantier*. Among the Moss *Roses*, one of the best is *Countess of Murinais*; *Louis Van Houtte* and *Prince Camille de Rohan* are two of the best dark colored *Perpetuals*. Later in the season come the *Lilies*, and the common White Lily is so thrifty and good that we should give it the first place, and, in fact, it is the only one advisable to be generally employed for the cemetery. The White Day Lily and *Yucca filamentosa* will follow later in time of blooming, and to continue to the close of the season, the hardy *Hydrangea*, *H. paniculata grandiflora*, and the Japan *Anemone* will give bloom until frost cuts them off.

For summer bedding, selections should be made with reference, to some extent, to the care that can be bestowed, and, with this in view, there can be a range through the list of the best bedding plants.



CULTIVATE FLOWERS.

Not from the blue-bird's first fluttering note, nor the flight of the wild geese northward, nor, indeed, from the calendar, do we reckon the advent of spring. Long before earth's bare toes peep from underneath her worn-out coverlet of snow,

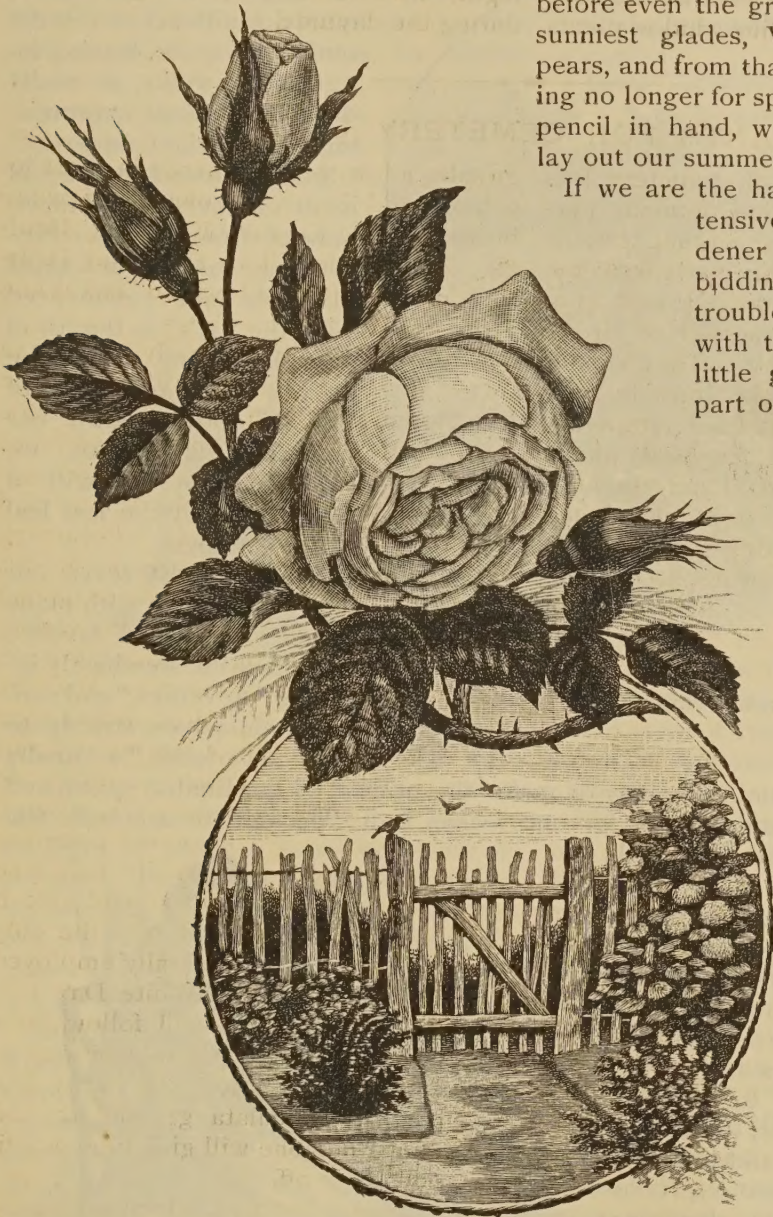
before even the grass shows green in the sunniest glades, Vick's Catalogue appears, and from that day we date. Waiting no longer for spring birds nor breezes, pencil in hand, we, scanning its pages, lay out our summer campaign.

If we are the happy possessors of extensive grounds, with gardener and staff to do our bidding, there can be little trouble in choosing where-with to decorate. Like the little girl, when asked what part of the chicken she preferred, we "would like it all," but to those who have limited grounds but expansive ideas, the task is greater, but so much the more delightful.

Instead of my usual free range of a grand grassy lawn, with shade and sun and winding walks, with which to work out my floral fancies, I found myself, late last spring, suddenly "set off" on a "reservation"—a spot so wee, so out of the way, so utterly and every way undesirable, that at first I was dismayed.

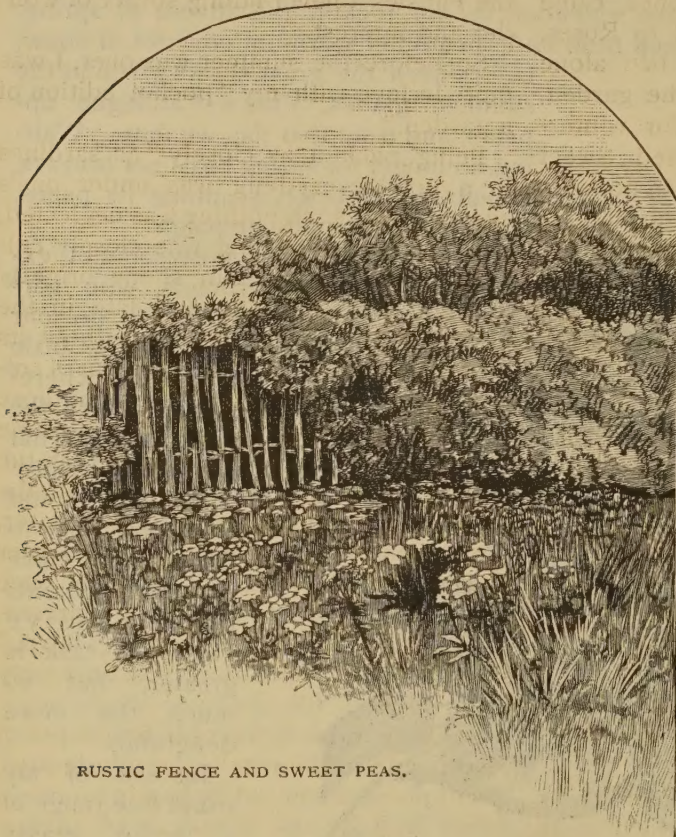
How could I

raise any variety of flowers on a spot no larger than a pocket handkerchief—any thing desirable on, not the best soil, sloping and open to the north, but surrounded on the three remaining sides by impenetrable shade! Plainly, if a high protecting fence was put around my "reservation," it would shut out what little sunshine sifted into that secluded spot; so, hoping that only for one summer should I be so "cribbed, cabined and confined," I contented myself with a temporary fence, which, for the benefit of some others similarly situated, I will describe. It was simply the waste lumber of the premises, split to convenient width and woven in and out with strong wires, which were fastened at top and base with staples to strong posts. The fence was not more than two and a half feet high, but proved an effectual barrier to chickens and pigs—the foes I had to contend with in my exposed position.



"THE ROSES WERE A PERPETUAL DELIGHT."

My liliputian garden was, in shape, a parallelogram, about twelve by twenty feet, with a tiny gate opening at one corner, and when, as late as the middle of May, the



RUSTIC FENCE AND SWEET PEAS.

"gude mon" had spaded a yard wide bed all around the edge, and three square ones down the center of the remaining space, leaving intersecting walks, it really did not look so unpromising as you might suppose.

Long before this, we had made out our list of "must-haves," from VICK'S. Proceeding upon our usual plan, we had commenced with the "A's" in the list of annuals, taking everything as we went, and had not left off dotting down our desires until, presto, we were brought up with a round turn by the last leaf in the catalogue.

Now, we must revise our list; and though with many a pang we cut off favorite after favorite, steadfastly ignoring "novelties," and confining ourselves strictly to "mixed varieties," we finally

became interested in contriving how to make the utmost of our limited space, and as this was to be our stronghold "for one season only," decided to use, with few exceptions, only annuals and bedding plants.

Now for results. Our (very) rustic fence proved a convenient trellis for Sweet Peas, which, nothing daunted by their late planting, soon covered it with delicate green and fragrant bloom, and made an admirable background for Zinnias, double as Roses, Asters, the finest I ever saw, Pinks, spicy and beautiful, Dwarf Nasturtiums, Gladioli, Heliotropes, Fuchsias, Double Petunias, Larkspur and Calliopsis, Whitlavia and Pyrethrum.

One corner was occupied by a magnificent clump of Salvias, which I had fortunately started in the house, thus bringing them into bloom early, and which always reminded me of the "burning bush," every time I saw it. Another was filled with a collection of Dwarf Cockscombs, which I never saw equaled, and the third, with a grand specimen of Double Marigold, which looked as though "Fortunatus" must have emptied his "pocket" right there.

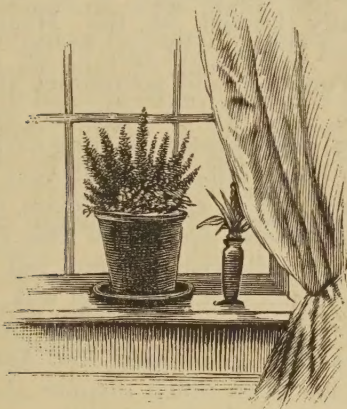
Of the center beds, one, the sunniest, was given to Verbenas, which bloomed, but



ARRANGING A BOUQUET.

though profuse, the blooms were small and hardly satisfactory. One to Pansies, which, except a few choice ones, came into bloom late; and the third to Roses, Geraniums and Coleus. This bed alone repaid me for all the care of the garden, and supplied many plants for winter-blooming. For edgings, I used Sweet Alyssum, Mountain Daisies, Mignonette, Nemophila, Candytuft and Portulacca; all except the two last giving a good account of themselves.

Just outside my enclosure, in an angle behind a thick screen of Morning Glories,



under temporary shelter, a barrel was placed to hold the sods which were thrown in as spaded up; these, with a little forest-mold and bone-dust, made a fertilizer of which I made good use all summer. Here, also, I kept my gardening utensils, a ball of twine, scissors, cotton, tin-foil, my gardening gloves, and a hassock, and having everything at hand, it was easy work to arrange a bouquet.

Side by side, close to the gate, grew a Rose Geranium, a crimson double Geranium, and a flower whose name I do not know, which bore tiny white, odorless flowers, three in a cluster. A spray of these, a floret from the crimson and a leaf from the sweet Geranium, made just the tiny button-hole bouquet which the school children loved and came for nearly every pleasant morning, and always there was a bouquet to be made for the teacher, the house, or some sick friend; and though these were seldom large, there was never a time, after the middle of June, but that we could supply one on very short notice, indeed.

If Gaillardia, Salpiglossis, and some of the finer seeds failed altogether, if the Swan River Daisies were spindling, and the Verbenas not quite as they ought to

be, the Roses were a perpetual delight, the Asters an astonishing surprise, and the Pansies a never failing source of wonder and interest.

So, before the summer was over, I was quite in love with my "pocket edition of a garden."

Being packed as closely "as sardines in a box," everything was under one's eye at a glance, so nothing was neglected, being small everything was closely cultivated, and as the sun shone brightly there at early morning and late in the afternoon, the shade was not without its advantages, for I found my treasures suffered much less from drouth than those in sunnier gardens, and as the sunshine kept me out, for more than a peep, in the morning until the dew was off, and the shade gave me permission to work later, I found that I had raised more and better flowers with less labor and inconvenience than ever before; and so, though circumstances have given me back my lawn, I shall cling for one more season to my little garden.

So, I say, raise flowers; if only a pot of Mignonette in the window, well attended, it will prove a comfort in lonely hours—a solace in sad ones—a source of interest always.

Flowers, by their subtle witchery, call one away from earth and its cares, their fragrance seems the very breath of the angels, and their growth speaks of God. The care of them is alike a physical, a mental and a spiritual benefit—aye, even means of grace, and so, I say again, cultivate flowers.

DART FAIRTHORNE.

ABSORPTION OF WATER.

The statement that all the water in a plant or tree is due to absorption by the roots, while nearly true, is not strictly so. DUCHARTRE concluded from some well devised experiments that the leaves are incapable of imbibing water or its vapor, and for twenty years physiologists accepted and taught this doctrine. But a few years ago his experiments were repeated in England, and it was found that he had been led into error, and that leaves can and do continually absorb vapor when there is more of it without than within them, as every one sees who observes the refreshing influence of a shower, or of humid after dry air. W.

SOME WESTERN APPLES IN THE EAST.

For twenty years I have been testing every Apple of any apparent value which has been recommended as hardy. Only the true iron-clad varieties are really profitable as market varieties in this severe climate, but in my tests I have found a considerable number of sorts which would be meritorious and desirable in slightly more favorable localities north of the Baldwin zone. A considerable number of these are of western origin, or at least of western fame, and have been received, at various times, from gentlemen of eminence in horticulture, who have regarded them as likely to be of value to me. But the fact is, that our winter climate, in Northeastern Vermont, is quite as severe as that of Minnesota. The only advantage for apple-growing which we have over that State is a less torrid and arid summer, and a cooler and briefer autumn, which makes all our Apples, which keep at all, better keepers.

The first Apple I will name is the Shiawasse Beauty, of Michigan, scions of which were sent me by President LYON and Secretary GARFIELD, of the Michigan Horticultural Society. It is believed to be a seedling of Fameuse, and Professor A. J. COOK, on page 432 of the last Michigan Horticultural Society's report for 1886, says that the form, and the color of both skin and pulp, are quite the same. I do not find this to be the case. The Apple is larger, flatter and more angular than Fameuse, and the color a lighter and more pinkish red, differently laid on and shaded; so that in localities where the Fameuse is well known it could not be sold for that variety, though the resemblance in flavor and whiteness of flesh would puzzle the purchaser. Professor COOK says of Fameuse, that "while it is pleasantly tart, it is remarkably tasteless," by which, I suppose, he must mean flavorless. But a lover of the Fameuse, as it grows in Canada, particularly prizes its not high, but delicate and very peculiar, flavor. The distinguishing thing in the Shiawasse Beauty, which convinces me that it really is a seedling of Fameuse, is its possessing this very flavor, with a slightly greater acidity, which is a distinct improvement, and the only difference which an acute sense of taste, unspoiled by tobacco, alcohol, tea,

coffee, or any other "dye stuff," enables me to detect. The great improvement in the Shiawasse over its parent is that it does not spot, to which may be added another, in its being a considerably better keeper. If my locality were a little more favorable I would plant it largely, and sell it as the "Michigan Fameuse." The tree is everything that could be asked for in vigor and productiveness, and bears young.

The next Apple I shall name is a variety to which DOWNING gives the name of Fall Queen, though in the west it is generally known as the Haas, (pronounced Horse,) but also by the name of Gros Pommier, and sometimes Maryland Queen. The tree is vigorous and productive, and comes to bearing early. The fruit is large, oblate-conical, very regular and fair, and in color an even, rich, full red. DOWNING speaks of this color as having a yellowish ground, but I have never seen a specimen that was not entirely red, and the color is peculiarly rich, exceeding the finest Red Astrachan. There has been much dispute about the quality of this Apple, and it has generally been condemned as worthless for dessert use. But DOWNING, who never flattered any fruit, says, "tender, very juicy, vinous, brisk sub-acid, good to very good," with which I agree, and call it a better eating Apple than Maiden's Blush, with which it compares well in keeping. I consider it a valuable market Apple, though not hardy enough for me, being a little less so than Fameuse. I received this Apple from Professor JOS. L. BUDD, of the Iowa Agricultural College.

Utter. This is an Apple I received from Wisconsin many years ago. DOWNING does not seem to have known much about it, and does not give its origin. The tree peddlers have of late been selling a great many of this variety as an iron-clad, calling it Utter's Red. In my orchard it shows very little color, except the ground of lemon yellow, slightly russeted, with an occasional pale red splash or stripe. In size it is medium to large, roundish-oblate, regular; flesh white, tender, juicy, pleasant sub-acid. Tree a moderate, regular bearer. This Apple is worthy of trial.

Edgar Red Streak. This Apple, known also as Walbridge, is of Illinois origin,

Edgar County, and has decided merit. In size it is medium, form oblate-conic; color whitish yellow, streaked and slightly splashed with red. Flesh white, fine, juicy, sub-acid; quality not high. Its great merits are its productiveness, fairness and good keeping. Hardiness about with Fameuse or Fall Queen.

Plumb's Cider. This Apple bears no resemblance to Smith's Cider, with which it has sometimes been confounded. Origin uncertain; received from Wisconsin. Tree a vigorous and very rapid grower, and productive. Fruit medium, oblong, greenish-yellow, with some red stripes. Not attractive in looks, nor good enough for any purpose to have much value in comparison with other Apples of its class and season. Only a scarcity of hardy varieties in Wisconsin brought it into notice, and I cannot recommend any one to plant it. Hardiness and season about with Fameuse.

Wolf River. This is a large and handsome Wisconsin seedling, so closely similar to Alexander as scarcely to be dis-

tinguished, except in the tree, which is, also, like Alexander, hardy, without being strictly iron-clad. Like Alexander, it is fairly productive and a first-rate cooking Apple. It should be carefully tested along side of that variety, to see whether it possesses the single advantage claimed for it, of being a better keeper. It is no better than its parent as an eating Apple. Received from Mr. WILLIAM SPRINGER, of Waupaca, Wis.

McMahon's White. Another Wisconsin seedling which has the merits of vigorous growth, hardiness in high degree—perhaps iron-clad—early bearing and fruitfulness. I like the appearance of the trees greatly, and the fruit is of good size; in color, greenish white with a little red, and keeps about with Wolf River, being also about as good for cooking and more tender for eating, though not rich or high flavored. It is a useful, and might, in some places, prove a profitable, Apple. Its lack of color and of dessert quality are its chief defects.

T. H. HOSKINS, M. D., *Newport, Vt.*

THE GREEN-FLOWERED ABOBRA.

Abobra viridiflora is a very pretty, rapid growing, summer climbing plant, belonging to the natural order Cucurbitaceæ. When well grown it is a beautiful plant, having very handsome, glossy, dark



ABOBRA VIRIDIFLORA.

green foliage, and although the flowers are quite insignificant they are succeeded by small, oval-shaped, bright scarlet fruits which form a decided contrast with the dark leaves. It is a half-hardy, tuberous, perennial plant, and, if properly cared for, will cover a space of ten or fifteen square feet during its season of growth.

The Abobra does best when given a sunny situation, a deep, well enriched soil, and copious waterings during seasons of drought, and in order to ensure satisfactory results the plants should be examined occasionally during the summer season, and their shoots so trained as to cover the desired space.

The plants can be easily raised from seed, which should be sown about the middle of March, in a well drained pot or pan, with light loamy soil. Sow thinly, cover slightly, and place the pot or pan in a warm, moist situation as close to the glass as possible. As soon as the young plants are strong enough to handle, they should be potted off into three-inch pots filled with light loamy soil and grown on carefully until the weather has become warm and settled, when they can be planted outside. As soon as the foliage has been destroyed by frost the roots should be carefully stored in any dry, frost-proof cellar, or in any situation where a temperature of from 50° to 58° can be maintained. These roots should be potted early in April, started into growth, and as soon as the weather has

become settled, planted out where it is intended the plants are to remain. Or the roots can be planted outside about the 10th of May, with usually fair results.

As far as my experience with the Abo-

bra has extended, I have always found it to be perfectly free from insect pests, and in my opinion deserving of more attention than it at present receives.

CHAS. E. PARNELL, *Queens, N. Y.*

WINDOW BOXES.

Window boxes for growing flowers are becoming yearly more popular, especially in crowded districts where there is no place for flower beds. Not alone in these places are they, however, beginning to be seen and used for this branch of window gardening, but for the decoration of the spacious mansion they are also well



MAURANDYA.

adapted, and fill a place in the floral decoration of the house nothing else can. On the upper stories this branch of gardening can be carried on as successfully as in the basement of the building. A love for the beautiful as exhibited in the culture of flowers is not confined to those having ample means and plenty of room for carrying out their desires in the way of large flower beds in summer and greenhouses in winter, but the occupant of the garret-rooms, with no other means of cultivating a few plants but a small, dingy window, may also possess a true love for Dame Flora, and one of the best means by which a person so situated can satisfy his desires in this respect is by the use of a window box.

Window boxes can be made of a very ornamental character, or they can be made plain, but require to be of a size

suitable for the space they are to occupy. They may be made of strong wire and lined with moss to keep the soil from dropping out, or they may be made of wood and decorated to suit the tastes of the owners. One main feature in window boxes is to provide ample means for the water to pass off freely. Plants will not long retain a healthy appearance if the soil gets saturated from imperfect drainage. The best kind of bottom for such boxes is made of narrow strips of wood nailed on, leaving a space of about half an inch wide between them, this allows a free passage of the water. Another good means by which the water can pass off freely, especially if the boxes are to rest solid on the window sill, is by making several auger holes along the bottom of the sides. It is not best, however, to let the box rest solid on the sill; raise it up an inch or so, or, what is better, support it on brackets, independent of the sill.

The most suitable soil for filling the box is what can be obtained from a mixture of rotten sod and manure; the ma-



OTHONNA CRASSIFOLIA.

nure should be sufficiently decayed so that it can mix with the soil freely. Place over the bottom pieces of charcoal, broken crockery-ware, or similar material for drainage, then fill up with soil, and it is ready for seeds or plants. A leading feature to be observed in filling window boxes is to have a sufficient quantity of good showy, healthy growing vines,

without which a window box is a rather tame looking object. There are some vines which are strong growing, and make rapid growth when allowed a support, but are comparatively useless when allowed to droop over the edge of a box. This class of them should be carefully avoided and such kinds chosen as grow well in a drooping form. Some of the best for this purpose are here noticed.



NIEREMBERGIA.

which are bell-shaped, in great abundance. This plant can be either produced from cuttings or seeds.

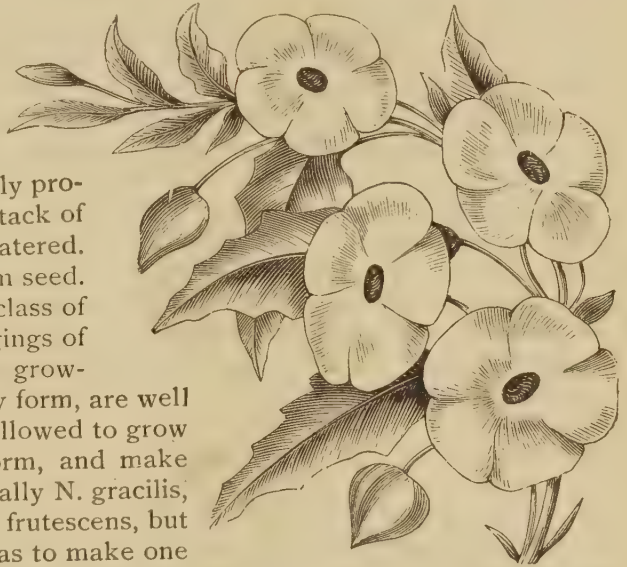
Thunbergias have considerable variety in the color of their flowers, the different shades of yellow and orange, also pure white. They are from one to two inches in diameter, bell-shaped, and freely produced. They are liable to the attack of red spider if not kept carefully watered. The plants are mostly raised from seed.

Nierembergias. Although this class of plants are generally grown for edgings of beds, and from their general erect growing habit, pinched back into bushy form, are well adapted for this purpose, still, if allowed to grow freely they assume a drooping form, and make excellent plants for boxes, especially *N. gracilis*, which has smaller flowers than *N. frutescens*, but are produced in such abundance as to make one mass of bloom.

Tropæolums are also suitable where a strong growing vine is required, but the double varieties, which do not make such a strong growth are well adapted for this purpose. They are always in bloom, always attractive, under even the most adverse circumstances.



DOUBLE TROPÆOLUM.



THUNBERGIA.

Besides these, there are *Lobelias* in variety, *Sweet Alyssum* the single or double flowering, or the variegated leaved double flowering variety, which is a fine plant for this purpose. *English and German Ivies*, *Vincas*, both *Harrisonii* and *variegata*, are suitable, the main feature being to secure good healthy plants, and induce at all times a showy, healthy growth.

For center plants, anything suitable for the flower garden can be used. When ample means can be employed, the finer

kinds of foliated plants can be used to advantage, such as the dwarf-growing

Palms, Dracænas, Crotons, and the fine-leaved Caladiums. Some of the best flowering plants are Begonias, especially *Begonia rubra* and *Begonia metallica*;



NOLANA.

also the tuberous-rooted varieties are well adapted for this purpose. *Impatiens Sultani* has no equal for this purpose; it is one of those plants which is always in bloom from the time it is placed in a two-inch pot until the frost cuts it off in the fall. For shady windows there are Fuchsias, Ferns, and other shade loving plants.

Keep off all insects and decaying leaves, give sufficient water at all times, sprinkling and washing the foliage when necessary to keep it clean and healthy. Plants

half cared for will soon grow to be distasteful, while the bestowal of the attention necessary to keep them healthy will ensure a reward of keen enjoyment. M. MILTON.

ORNAMENTAL-FRUITED SHRUBS.

When the last Chrysanthemum has faded, and Pansies are hidden beneath their winter covering of leaves, a judiciously planted shrubbery will still furnish a bit of color to relieve the gray and brown, or contrast with the white of December. One of the prettiest sights from my dining-room window, last year, was a small Burning Bush, or *Euonymus purpureus*, with its scarlet and crimson berries peeping through the snow that enveloped them. The bush has thin, smooth, glossy green leaves, and obscure greenish flowers in summer. The fruit is of peculiar shape, something like a square with the sides deeply indented. It is borne on long, drooping pedicels. When ripe, the crimson envelope splits, disclosing the scarlet fruit within. Repeated freezings cause the color to fade, but the berries are usually bright till after holidays. The shrub, with little care, takes a tree shape, though I never saw one of any great size. The fruit, in manner of opening and general appearance, bears a resemblance to the Climbing Bittersweet, *Celastrus scandens*, a vine too seldom cultivated. The foliage of this plant is pretty, and the purplish flowers not unattractive, but the vine puts on its glory when the Maples begin to turn, and the berries hold their fire till the days begin to lengthen, while if cut and kept from frost and storm they will last for years without shriveling and dropping as do those of the Black Alder, or American Holly, *Ilex verticillata*. The Alder berries rival a

Scarlet Geranium in tint, till bleached by repeated freezings and thaws. The shrub naturally takes a rounded, compact shape, begins to bear fruit when small, and if it were uncommon and hard to cultivate, would be highly prized. A sunny situation suits it best, while the *Euonymus* will "make a sunshine in a shady place," if the shade be not too dense. The Snowberry, or Wax Apple, *Symphoricarpos racemosus*, is pretty for contrast, though it generally loses its berries before the others mentioned attain their greatest beauty. But if cut in early fall the dainty "apples" can be retained for Christmas decoration. The flowering sprays are weak, and the bush is often ill-shaped from the breaking of its boughs. It looks best planted with something else. A clump I know of has lived happily for thirty years or more in company with a Snowball and a pink Rose, and all three look as if they might be good for thirty years to come.

The Scarlet-fruited Thorn, *Cratægus coccinea*, is another friend I must say a good word for, though its fruit is less attractive than its flowers. I would hardly advise any one with very small grounds to plant it, though it is no worse than that fiery favorite, the Japan Quince. Both grow to large size, and should not be planted where they will encroach on paths. If they are, they will certainly dispute the right of way. Where the grounds are large a clump of wild Rose planted against a background of

evergreens gives a pleasing effect in summer, with flowers exquisitely fragrant, and in winter with bright red hips which frost seems powerless to discolor. With the petted aristocrats of the garden a free production of seed would mean deterioration of flowers, but we need not fear that with *Rosa Carolina*.

The native species of *Cornus* and *Viburnum* have handsome though not specially showy fruit, which drops earlier, not distinguishing the bushes when the leaves are gone. Still the fruit may be taken into account as beautiful in late summer and early fall. The berries are various shades of blue and red.

The Berberry, *Berberis vulgaris*, is as valuable for its orange-red berries as for its fragrant yellow flowers; perhaps more so, as the berries are edible and the flowers are not. But in making Bayberry preserves one must use the old rule for sweetening Rhubarb, "as much as your conscience will let you, and then a handful more." So, unless there is a dearth of acids, or a plethora of sugar, most who plant Bayberry prefer to let the gay berries remain on the prickly branches to cheer the eye instead of the palate in the wintry days.

Mountain Ashes are generally considered trees, but one variety is scarcely

more than a large shrub. They seem a little difficult to transplant; fully half I have known planted have failed to establish themselves and died in a year or two. Where it succeeds it is pretty in foliage and brilliant in fruit.

Our species of *Smilax* are pretty climbers, with bluish fruit more conspicuous than the flowers. If cut before it is dead ripe the fruit will dry on the spray, and may be used in winter bouquets. *S. rotundifolia*, common Greenbrier, is a delicate vine, but apt to be troublesome from its prickles. *S. herbacea*, the Carrion Flower, is smooth, but the odor of its blossoms is disgusting, though not worse than that of some fashionable species of *Arum*. Neither are plants which should be grown at the door, for close companionship would be undesirable.

An objection often made to planting bright berries is that they are poisonous. I do not think those of the *Euonymus* are, as fowls eat them greedily with no ill effects. The Wax Apples are not, I know from personal experiments. The hips and haws are so hard as not to be tempting to any child.

I would be glad to know the qualities of the Bittersweet and Alder berries. Who will tell me?

LENA LESLIE.

SMALL GREENHOUSES.

While it is true that small greenhouses may be built at the South for a trifling amount of money, which will answer all requirements, it is equally true that at the North a satisfactory building cannot be built for a song. When we have to make provision for not only a possible, but probable, thirty-degree-below-zero spell of weather, no ordinary wall will answer our purpose, and our greenhouses must be built as carefully as our dwelling houses, and to build them in that manner costs a good deal of money. I am sorry that I cannot tell those who ask me for estimates of cheap structures, that a house which will answer all the purposes of a greenhouse can be built for \$25, or \$50, or \$100, for I would like to have one attached to every home; but my regard for truth and their good opinion is too great, and I always discourage whoever writes to me that he intends to put up a

cheap house, expecting to have it quite as satisfactory as a costlier structure, from attempting it. In nine cases out of ten it is money thrown away. But when a person tells me that he has two or three hundred dollars to invest in this way, I can conscientiously advise him to go ahead, for I know that with such an amount of money a very good, small greenhouse can be built, one which will accommodate as many plants as most amateurs care to grow, and which will, if rightly built, afford plants ample protection against the rigors of our northern climate.

Last year, my collection of plants outgrew their old quarters, and I built a greenhouse which cost me somewhere in the neighborhood of \$500, perhaps a little over rather than under that amount. It has afforded me so much pleasure the past winter that I propose to describe it

thinking that, perhaps, some one who loves flowers as well as I do may want to put up a building expressly for his pets, and a description of my house may afford him some valuable hints in its construction.

I would not advise any one to make the walls after the plan we frequently see recommended, by setting posts in the ground and boarding on them, because they will rot in spite of all you can do to prevent it, and the frost will affect them. This may be a cheaper way, but it is, after all, very questionable economy. I had a wall of stone laid, exactly like the wall we put under a house, reaching down into the ground far enough to be below the frost line. This is good for a life time. On top of this wall I had sills placed, and two-by-fours set up, sixteen inches apart, along them. On both sides of these two-by-fours is a tier of boarding. Over these is building paper. On the inside the building is ceiled. On the outside, over the paper, there is a second thickness of boards; over this there is another thickness of paper, and the outside is finished with clapboards. Thus I have a wall in which there is an air-space, from which all cold is perfectly excluded by two thicknesses of boards with paper between them, and a coat of paper under the clapboards; through such a wall as this it is impossible for any cold to come in. It cost me more to build it, but it is so complete a barrier against the entrance of cold that I have nearly saved enough in the cost of fuel to pay for what it cost above the ordinary wall. My house is about twenty-four by twenty, and is built on the south side of the dwelling house. The side walls are four and a half feet high. The wall at the south end is only three feet high, and above that the end is all glass. The roof is all glass, with four sections which can be lifted for ventilation. The sash in the end is double glazed, and in the coldest weather we have had this winter—the thermometer has registered thirty degrees below zero two or three times—the plants occupying the shelves across the end of the house have stood with their leaves against the glass without receiving the least injury, something that I would not be able to say if this end sash had not been double glazed. Instead of having two sets of

sash from each side, with about an inch between the panes. This space keeps the frost from accumulating on the glass, so that two purposes are served by having double glass. Nearly all the sash in the end of the house is hung on hinges, so that it can be swung open in the summer, to admit the air freely from the side as well as the roof.

At first I was undecided as to what sort of heating apparatus to use. But a somewhat extensive correspondence among prominent florists convinced me that most of them considered hot-water heating the best method, if not the cheapest, and I bought a base-burning water heater or boiler of a New York firm, and the result, during the past winter, has been all that I could desire. There are three rows of four-inch pipe running around the sides and one end of the building, from the heater, and I have found no difficulty in keeping the temperature at sixty in the coldest weather, when the sun did not shine. On a sunny day, no matter how low the mercury was out of doors, it is necessary to open the ventilators after nine o'clock; if this is not done, the temperature will climb up to nearly a hundred. In order to keep the heat down, it has been necessary to close the draft in the heater on all sunny days, thus saving a great deal of fuel. This heater is as easily regulated and cared for as any coal stove, and answers the purpose for which it was made perfectly. It consists of two shells of iron between which the water circulates about the fire, which is fed from a magazine, the same as the ordinary coal stove. Connected with the top of the heater is a pipe through which the water flows when heated to a certain temperature. This pipe is connected with the upper pipe running around the greenhouse, and the water is carried to a tank in the farther corner, from the lower part of which the water returns to the heater through the two lower pipes running about the house, and thus a constant circulation is kept up. The heat is mild, moist and summer-like, and plants grow in it quite as healthy as they do out of doors in summer. The pipes running around the house are under the shelves, entirely out of the way and out of sight, unless you take particular pains to get at them for inspection. The heater stands in a small

room by itself, which is shut off from the greenhouse by a glazed door, and thus all gas from the fire is prevented from getting in among the plants. Several sizes of these heaters are manufactured, and any one wanting to heat a greenhouse with them can ascertain what size he needs by writing to the manufacturers and giving the size of his house, and the number of square feet of glass on sides, and roof.

In the center I have a bed in which Roses and other plants are set directly in the ground. Shelves run around the house on three sides. Against the end attached to the dwelling house, vines are trained. It is connected with my study by large glass doors, thus enabling me to enjoy the flowers without being among them. There is no floor, it being filled in with earth as high as the sills, with plank walks running along in front of the shelves. A well in one corner supplies the water. It is banked up on the outside above the sill, and no cold can get in at the bottom. The glass is put on with the patented zinc joints, instead of being lapped, as is usually done, and I am well pleased with the result. There is no crevice between the glass for cold

to come in at or warm to go out of, and for water to work into and freeze and break the glass. The ventilating apparatus, made by the same firm that supplied the boiler, enables one to lift the sash by simply turning a crank. You can open it a little or a good deal, and it will stay where you leave it. There is no danger of its coming down with a crash when a gust of wind comes along.

In short, I have what I consider a model little greenhouse. In no other way could I have expended the money and derived as much pleasure from it as I have already done from the cultivation of plants under circumstances favorable to their best growth and development. I have a house which is built substantially and will be good for a long time, and it has room enough for all the plants I shall care to grow. I have neglected to say that it is eleven feet high in the center, therefore I have a chance to grow some large plants.

A great many persons who would like a greenhouse are kept from building one because they have an idea that they are very expensive, and yet they expend more on unnecessary pleasures every year than this building cost. EBEN E. REXFORD.

BITTER-SWEET.

A thrush sat singing unto the sweet May
A rollicking, rythmical roundelay;
He sang of his love, so constant and true;
But May had many bright lovers to woo;
Her Apple trees burst into snowy bloom,
Her beautiful blossoms lent sweet perfume,
Her breezes blew balmy all the day long,
And she heeded not the thrush's gay song.

The bird told his love, again and again,
In exquisite measure and sweet refrain,
Till seeking the shade of the Hawthorn wide,
Sang sweetly of love, till for love he died.
Then May, the tricky, compassionate sprite,
Stopped all her dances and dreams of delight,
Drew sack-cloth of clouds across her sweet face,
Dallied no more in the breeze's embrace,

Wept out her sorrow in bright crystal showers,
Scattered no smiles through the mist-woven hours,
Made her low moan all the dew-laden night,
Mourned her lost lover in sorrowful plight.

Sighed she so gently, and sighed she so low,
"Because Thorns ever with Roses must go,"
"Because joy ever with sorrow must meet,"
"I set as love's symbol, the Bitter-sweet."

Stooping she left on the bright moss a trace;
A dainty green vine sprang up in its place;
It clamber'd far over the Hawthorn trees,
It flung all its lissome arms to the breeze,
It lifted its leaves to the morning light,
And closer its fingers were turn'd each night;
But when the summer's bright blossoms were fled,
And the forest leaves were withered and dead,

Lo, all the vine with bright berries was hung,
As though, in wild sport, the fairies had flung
Handfuls of rubies, around them, to shine
Brighter than blooms on the wild swaying vine!
If, in life's May-time, some sorrow may come,
Though wild birds warble, and honey bees hum,
So, when our pleasures, like dead leaves, lie low,
Life a late beauty, love-planted, may show.

DART FAIRTHORNE.



FOREIGN NOTES.

ASPARAGUS PLUMOSUS.

This singular climber, and other sorts with a like habit of growth may now be increased by the division of the crowns. In severing the pieces, as many roots should be secured to each as possible; for this reason it is well not to carry the division too far. Give pots proportionate in size to that of the pieces, and keep them in a growing temperature until they have recovered from the check. Where seed has been produced they may be increased quickly, as it vegetates as freely as that of the edible kind. The seeds may be sown at any time as soon as ripe, giving them a little warmth, and keeping the young plants in a genial temperature. Though these varieties of *Asparagus* have mostly been grown in heat, they will thrive in a moderately warm greenhouse, and where the plants are subjected to fire-heat the temperature should not be too high, otherwise the growth will be thin and weak, and the leaves wanting in the substance requisite to make them last when cut, for which purpose few plants are so well adapted or so enduring when the growth possesses the needful solidity.

T. B., in *The Garden*.

USEFUL GREENHOUSE PLANTS.

Some growers repot their *Amaryllis* bulbs in autumn; others, late in spring. We repot ours in the first or second week in January. One large grower with whom I am acquainted thinks it best not to repot them oftener than once in two years; and in favor of all these systems of treatment there may be something to say. A good deal depends upon subsequent management, and also as to the time when they are expected to be in flower. Several growers, for instance, have told me that they succeeded best when they did not repot their bulbs, the reason alleged being that, after potting, the roots from the base decay, and that will happen if they get too much water before they have well started into growth; but if not watered for a month or six weeks after being repotted, they will be all right. We grow nearly a thousand bulbs of all sizes,

and although all of them were potted by the 10th of January, not one of them was watered until the middle of February; by that time they had grown considerably, and numbers of them were pushing up flower-spikes. We also maintain a moderately dry atmosphere at first; otherwise some of the bulbs decay at the crown. When in full growth, all danger of decay both above and below ground is over, and being plunged in bottom heat but little water is required. I always raise seedlings of these, and also of other flowers which we cultivate, and in a very few years we have had a small measure of success. The seedlings raised last August are now growing freely, three plants being in a four-inch or five-inch pot. In these they will produce good, large bulbs before the end of the season. Plants a year older raised from seeds are now growing singly in a four-inch or five-inch pot, and a very small proportion of these will flower this season. *Amaryllises* are easily hybridized; the anthers are removed with the finger and thumb before the pollen is shed—that is, when the flowers are partly open. In thirty-six hours subsequently the foreign pollen may be applied to the stigma. The seed-pod will take about three months to ripen.

J. DOUGLAS, in *The Garden*.

SCARLET FEVER.

A very close piece of inductive reasoning was presented lately to the Royal Society by Professor KLEIN. In his endeavors to ascertain the cause of an outbreak of scarlet fever he showed, first, that certain minute plants—micrococci—were always associated with the disease, then he isolated these germs, cultivated them in the way familiar to those who study these organisms, and then inoculated previously healthy animals with the germs, with the result that the disease was induced. Following up other clues the cause of the outbreak in question—that at Hendon—was traced to a particular dairy farm, then to a particular cow, and still further, to one particular teat. It was shown that milk from the other

teats was free from germs, while that derived from the teat in question contained germs capable of producing the disease in other animals. The infecting germs came from the ulcerated teat, so that the milk itself, even from this teat, would be free from germs if means could be taken to avoid contact with the sore spot. Hence we have here the cause of scarlet fever tracked home, and the means of prevention are clearly indicated. The anti-vivisectionists may disapprove of these experiments, but no one who has had experience of the horrors of malignant scarlet fever, or who has any sympathy with suffering animals, will doubt that the permanent benefits conferred on man and on animals enormously outweigh the relative slight amount of harm done to the few animals experimented on.

Gardeners' Chronicle.

AMERICA IN LONDON.

A writer in a late number of the *Gardeners' Chronicle* gives an account of the preparations being made at the grounds of the American Exhibition, which is to open in London this month. The Exhibition will occupy twenty-three acres. The gardens and promenades surrounding the buildings will occupy about nine acres, and it is with great difficulty that it "can be transformed into a pleasing promenade and gardens for the visitors to the Exhibition.

"One of the most prominent features at the present moment, and the only one that shows an approach toward completion, is some rockwork artistically arranged, and which harmonizes with the gentle undulations of the surface in that part near the West Kensington station. This spot will probably be one of the most attractive in the whole garden. Here will be arranged some of the choicest hardy flowers, especially Lilies, Orchises, &c., of North America; and the beds are so designed as to suit the various requirements of the plants. A portion of this section has already been

taken in hand, and planted by Mr. T. WARE. There are 'colonies' of such interesting plants as *Cypripedium spectabile*, *Sarracenas*, *Dodecatheons*, *Trilliums*, and many other well known beautiful perennial plants. The crevices of the rocks are planted with North American Ferns and Saxifrages."

The garden will be studded with groups representing the American flora. The Evening Primrose (*Oenothera*) will constitute one group, the Phloxes another. "Close to these will stand groups of the best species of Michaelmas Daisies, (*Asters*), and these will carry on the floral display until the end of the Exhibition." Composites will predominate making the garden attractive during the latter part of summer. *Spiræas*, *Gaillardias*, *Helianthus*, *Lobelias*, *Lupines*, *Dahlias*, *Agaves*, &c., will appear. There will be a *Rhododendron* display, and plats of some of our crops. Altogether it is expected to be a beautiful and imposing display.

ANNUAL SUNFLOWERS.

Seedsmen state that of late years there has been an unwonted demand for seeds of Sunflowers. It is a fact that a blaze of Sunflowers gives conspicuous dashes of color to gardens. Some one has styled the Sunflower "the king of the flower garden," and there is a kind of regal aspect about it. It is common to see flowers more than a foot across, and the dark centers stand out conspicuously when margined with their broad zones of golden yellow petals. There are dwarf and tall forms of the single, and also of the double varieties. The last named, when of a fine double character, are very imposing subjects: but the current taste certainly runs in the direction of the single in preference to the double varieties. Wherever planted, they should have good soil, and while there is much in the quality of the variety, it is also certain that a good soil has a great deal to do with the production of fine flowers. J. C. C., in *The Garden*.



PLEASANT GOSSIP.

EXPERIENCE AND INQUIRIES.

In the December number of your MAGAZINE, 1885, you published my account of the manner in which I propagated *Clematis candida*. Last fall, I layered a branch of *C. Jackmani*, having side shoots on, leaving the young shoots sticking out of the ground, and it rooted at every joint, so it now covers one side of a porch and one end of the house, having numberless flowers on it all last summer.

I want, also, to tell you of my Wax Plant, as from all I can learn, it has done remarkably well. It is just two years and a half old from a slip, and the main branch is twenty-five feet long, with a number of others of various lengths, some twenty feet long, others less, and it has blossomed twice. I have given it very little water during the winter.

My two *Amaryllis Johnsonii* have blossomed this spring for the first time, and each bulb has had two flower stalks, one following the other, each stalk having four large, beautiful blossoms at the top, making eight flowers to each bulb.

I have had *Fuchsia speciosa* and *F. Arabella* in full bloom all the past winter, through following your directions to plunge the pots out of doors in a shady place in summer.

My *Calla* has not been without at least two flowers all winter, and sometimes more. It now has four buds in different stages, and I have just cut off two large, faded blossoms.

My Chinese Primroses, two and three years old from seed, have been a wonderfully beautiful sight since last fall. They are certainly the ideal house plant when properly treated, as they never have an insect, and never fail to give more flowers than any other plant I know of.

My *Cyclamen* have blossomed all winter, too, only a year and a half old from seed.

I have a plant that I got while in the South, called *Magnolia fuscata*, or Banana Shrub, which blooms every spring. The blossoms smell like a Banana with an added fragrance that is most fascinating. We eat more Bananas while that plant is in blossom than during all the rest of the year. Its odor seems to excite a desire for Banana fruit. I think your readers would enjoy having it.

I brought from Florida, the past winter, a number of bulbs—Lilies or *Amaryllis*—the names of which I could not learn. They have started to grow in the conservatory, and if I succeed in making them blossom, I hope to learn their names from you.

I have the German Ivy in blossom for the first time since I have had it under cultivation.

One of my *Fuchsia speciosa* is six feet high, and another is about three feet high, and has long branches loaded with flowers, drooping over in the shape of an umbrella. It takes about six feet of room in circumference. This one has filled a large vase with roots, and I do not know what to do with it, as I do not want to put it into any thing larger. Will you kindly tell me what is best?

I have had, in addition to the above named plants, blossoming, this winter, in my conservatory, several varieties of *Abutilons*, many *Geraniums*, *Hibiscus*, Double Sweet *Alyssum*, the monthly *Pelargoniums*,

the White Paris Daisy, or *Marguerite*, which, by the way, no one should be without, *Heliotrope*, purple and white, *Begonias*, varieties of *Oxalis*, *Lobster Cactus*, *Olea fragrans*, and many other things.

One of my *Fuchsia Arabella* had a peculiar formation on it, it was a *Fuchsia* within a *Fuchsia*, both having all the parts. The last one was directly in the center of the first, and it made an enormously large flower. I have preserved it in alcohol. Is it a common thing for the *Fuchsia* to do this?

My success in flower culture has all come through reading and following the very practical directions given in your priceless MAGAZINE, and is sufficient proof of its great value, as I was entirely ignorant of the art of raising flowers four years ago. I feel as if I could not keep house without its monthly visits, and I only wish they were weekly.

Will you please tell me if *Oxalis Bowii* and an equally large-flowered white *Oxalis*, with yellow eye, ever bloom all winter? They will blossom but a short time in fall or early winter for me.

Can you tell me the true name of the flat-leaved, rosy pink, large-flowered *Cactus*? The plant is similar in appearance to the double, red-flowered *Cactus*.

I would like to know how to prevent the older leaves of *Nasturtiums*, in pots, from turning yellow, if there is a way. I have both single and double in blossom now.

Will you please tell me how I can destroy or drive away a large flying ant that stings my *Pæony* buds every summer, and causes them to blast?

I am very anxious to learn the things I have asked, and shall thank you very heartily for any information you can give me. I owe you thanks for many favors, and if this letter, or any portion of it, will be of interest to your readers, I shall be glad.

MRS. M. R. D., *Manistee, Mich.*

The above experience of a plant grower, while it will, undoubtedly, please our readers, we hope will, also, be an example and an inducement for them to recount, in a similar manner, their successes and failures for the benefit of others. This department of the MAGAZINE is primarily intended for this very purpose, and its space stands open to be occupied by the recital of the every day hopes and failures that attend the amateur plant grower.

The *Fuchsia* inquired about can be gradually dried off during summer, thus hardening and ripening its wood. About the first of September it can have its head pruned in, its roots reduced, and be repotted in rich, fresh soil in a pot of smaller size, and be brought into heat in the house, and it will commence to make new growth for the following winter's bloom.

The duplex flower of the Fuchsia mentioned is a phenomenon which, though rare, is one that most plant growers of experience have witnessed. Abnormal variations of different kinds in the flowers of Fuchsias are not infrequent.

The blooming season of the *Oxalis Bowii* is during the fall months.

The species of Cactus are too numerous to allow of identification by a simple allusion to them.

The older leaves of *Nasturtiums* will ripen and turn yellow; they can be removed when unsightly.

For the insect attacking the *Pæony* buds, as mentioned, we should use the Insect Exterminator, dusting it on as soon as the buds are formed, and repeating the operation whenever necessary, as the powder may be washed off by rain or blown off by winds.

BULBS—MOON FLOWER.

If the sin of idolatry is ever pardonable, I think I may find absolution for an idolatrous love of flowers. Just now I am making a specialty of Roses, Lilies and *Amaryllis*. Out of doors I have over thirty varieties of Roses; indoors a few other sorts. But the Lilies are the pride of the garden; of them I have now twenty sorts. Our native Lily (*L. Philadelphicum*?) bears cultivation well, and a single stalk had thirty blooms the past season. Last fall, some party inquired something about *Lilium excelsum*; with me it has proved perfectly hardy, one stand alone had thirteen stalks in full bloom, and were the admiration of the neighborhood. Lilies in general need rich, well drained ground, and want, most of all, to be let alone, indeed, I know of few plants more impatient of interference.

By the way, will some one give me the proper name for the Lily called "Golden Candlestick?"

Ismene is another one of my trials; I had one stalk of pretty cream-white flowers, but no more.

Last season I had a Moon Flower, or, more properly, a vine of it, for though it made many feet of growth I never had even a bud from the whole plant. Is this unusual?

I have a *Cyclamen* more than ten years old, which is full of buds, and these plants still blossom well, although of such great age; the corms of some must measure four inches in diameter.

Please tell me where I can find *Imantophyllum*. I must have it. MRS. C. A. P., *Gouverneur, N. Y.*

We hope to have the experience of another season with the Moon Flower in the same place. Are the nights too cool there for it?

As for *Imantophyllum* bulbs, they, and a great variety of bulbs, can be procured in Europe which are not often offered in this country, as there is not sufficient demand for them to warrant keeping a stock. Orders sent to us for rare bulbs

any time before the middle of June, we shall endeavor to find among the European bulb growers, and get them over here early in autumn. Our readers can avail themselves of this opportunity to get anything rare among bulbous plants that they have been unable to purchase in this country. In most cases they can be informed in advance of the cost.

CINERARIA—GLOXINIA.

From a package of *Cineraria* seed which I received last summer, I now have ten of the loveliest plants, all in bloom; they attract a great deal of attention. I think every seed came up, as I gave a great many plants away.

Please inform me how old *Gloxinia* and *Amaryllis Johnsoni* must be to bloom.

MRS. E. A. B., *Adrian, Mich.*

The time required by *Gloxinias* for blooming from seed depends upon their treatment; as ordinarily raised, they bloom the second year. A prize essay on this plant, published in our last volume, will be found instructive.

Amaryllis Johnsoni will bloom when the bulb is sufficiently strong—usually when the bulb is about two inches in diameter.

ASPARAGUS—ALLIUM.

Please inform me, in your next issue, how to propagate the *Asparagus tenuissimus*, and how large a pot a plant of it, with seven stalks, about twelve inches tall, requires. Also, is it the same thing as advertised in the seed department of some seedsmen as Climbing *Asparagus*?

I have some bulbs of *Allium* which grew in pots all winter, but did not bloom, the tops of which have died down; shall I remove them from the pots or let them be in the dirt? C. W. W., *Stafford, N. H.*

Asparagus tenuissimus can be increased by division of the roots, and by cuttings of the tender parts of the shoots. A six or eight-inch pot is large enough for the plant inquired about. It is a plant of climbing habit, and is sometimes called Climbing *Asparagus*.

Bulbs of *Allium* can be kept dormant for a time in the dry soil in which they grew, or in dry sand.

NEEDLE CACTUS.

Does the Needle Cactus bloom? If so, please describe the flower. J. L.

This species of the Cactus blooms, for there is none of the family that does not; but what the Needle Cactus is, we have no means of finding out, and so, cannot describe the flower.

MEXICAN ORCHIDS.

Some good friend has sent me a basket of plants from Mexico. I will be much obliged to you to send to me, as soon as possible, description, and directions how to treat them. They are *Stanhopea tigrina* and *Laelia anceps*. REV. P. BARDON, *Ont., Canada*.

Both of these plants are what might be called cool-house Orchids, as they will thrive with a moderate heat in winter—*Stanhopea* being best suited with 45° to 60°, and *Laelia* with 60° to 65°. *Laelia anceps* sends up a scape bearing from two to three flowers; the sepals and petals are thick and waxy in appearance, of a rosy-lilac color, the lip is rose and purple; blooming season in December and January. Thrives best on a block of wood. It should have a full exposure to the sun.

Stanhopea tigrina has pendulous spikes of flowers which push out below the pseudo-bulbs, and consequently the plants are best suited with basket culture. The flowers are very large, pale yellow, transversely barred and blotched with dark purple and chocolate; blooms in summer.

A SPRING WILD FLOWER.

One of the handsomest of our native wild flowers of early spring is represented in our colored plate this month. Yellow *Erythronium*, American *Erythronium*, American Dog's Tooth Violet and Ad-der's Tongue, are names by which it is known. *Erythronium*, from the Greek, means red, and has no real significance in connection with this plant, though it was applied to it in relation to the European variety, *E. Dens-canis*, for its flowers are of varied shades, from rosy purple to almost white. The species here figured has a wide range, being common in the Eastern States and westward and south as far as middle Florida. It grows in rich woods, and especially on their borders when they are thick, as it appears to like considerable sunlight.

The plant consists of a scaly bulb, bearing a scape from five to nine inches high, from the middle of which spring two leaves, one of them somewhat smaller than the other, and at its summit is borne a single, nodding or drooping, light yellow, lily-like flower. The leaves are peculiarly marked with brown and purplish-brown blotches, which are well represented in the plate.

In Florida, this plant makes its appearance as early as February, in the Northern States in April and May. Last year we noticed it near here on the 19th of April, but this year, on account of the lateness of the season, it may not appear until about the first of May.

A variety of this species, having its leaves very unequal, and with a bract on the scape near the flower, grows in some parts of Vermont.

A white *Erythronium*, *E. albidum*, grows in wet meadows in Western New York and in the region westward to the Mississippi.

West of the Mississippi, in Colorado and Utah, is found *E. grandiflorum*, the leaves of which are not mottled, and the flowers, instead of being borne singly, are sometimes as many as six on the scape—they vary from one to six. Their general color is about the same as represented in the plate, but with more or less orange about the base.

A WINDOW BOX.

I desire to say to those who have no space or ground, and like shade and pretty vines, they can take a common box, fill it with good soil, and sow seeds of the Flowering Bean, Morning Glory, and many other climbers, and they will grow and pay for all the trouble. One year I put a box under my side window, planted in it the bulb of the Mexican Potatoe and seed of the Balloon Vine. I gave them all the water they wanted. How they grew; that window was greatly admired. The Balloon Vine has delicate white blossoms, in clusters. People living in costly residences would often stop to admire the vine-clad window of my cottage, that cost so little.

J. L., *Hamilton, Ohio*.

SPARAXIS AND IXIA.

In the April number of this MAGAZINE, E. C. M. asked if *Sparaxis* and *Ixia* are suitable for window plants. I would be lost without them for winter plants. I give them the same care as the Hyacinth, and they give me more pleasure, as they are not so common as the Hyacinth, and are lovely. My *Sparaxis*, this year, had two flower stalks and each had ten blooms, while the *Ixia* had nine beautiful flowers.

E. Q., *Valparaiso, Ind.*

ORCHIDS AND ORCHID-GROWING.

It is but few years since rich amateurs began Orchid collections in this country, after the fashion of those which are the pride of the great houses in England. The interest in these curiosities of nature develops like the taste for pottery and embroidery, and is not likely to lessen when it is known that, not merely a few, but many fine Orchids can be grown without the expense popularly attached to their culture. Though Orchids will probably never be adapted to house culture, yet many of them may be successfully raised with the same care needed for a fernery, in any greenhouse that will grow Roses in winter. This is the statement of Messrs. SIEBRECHT & WADLEY, the New York Orchid growers, whose Orchid exhibition the first of March drew the fashion of the town.

Orchids are found in a wide range of climates and temperatures, from the hot, steaming vales of Java and East India to the cool uplands and ranges of Himalaya and the Andes. The families of Orchids are distinct enough to comprise a flower world of their own, repeating nearly every form and hue of favorite flowers—now a tuft of white Lilies or Tulips, many colored Iris in violet, white and gold, then a tress of Hyacinth with its distinct odor, next a bough of yellow Jasmine heavy with scent, a spike of Masdevallias red as flame, or Cattleyas pure as Magnolias, graceful as Rhododendrons in flower. Some insignificant buff blossom under the leaves fills the air with cinnamon odors; a basket of pale, Tulip-like pendants sheds an aromatic Rose attar; a brilliant spray flings its vanilla breath for yards around, while their pearly textures take every vivid yet delicate ray that sunbeams flash through cloud and dew. The vaporous petals seem colored by light falling through prisms, and with their glories of color, their intoxicating fragrance, their variety and endurance, fashion is abundantly justified of her latest caprice.

Among the favorite species, superb in growth and not beyond culture in ordinary greenhouses, are Masdevallias from the mountain ranges of South America, whose blossoms are said to glow like red hot iron in the sun. *Odontoglossums*, of which *O. Alexandræ* ranks as a princely Orchid, if not a very queen

among them; the summer blooming *Disa*, like great crimson, transparent Lilies; *Dendrobiums*, with violet painted eyes upon their waxen white flowers, and perhaps a *Cattleya*, like a large, ruffled white or pearly-purplish Lily, with one glowing amethyst petal. *Vandas*, *Aërides* and *Phalænopsis* should be left to hot-house culture, the choicest, though not the most beautiful Orchids, being grown in glass cases inside the palm house to secure the exact air they need. The secret of Orchid growing is genial moisture in the air. Even temperature of 60° in winter and 70° in summer, abundance of tepid water and perfect drainage. They are of two classes, the air-growing kinds, which send out roots from a joint or an old flower-stem into the air, and only need a block of wood or cross-bars to cling to, when they can be severed from the plant and hung up to grow with no other protection than some living moss about the roots to keep them moist. The earth-growing Orchids have bulbs which are potted in rough, fibrous peat mixed with an equal quantity of broken pottery and living *Sphagnum*, or plant moss. They need fresh, well warmed air fairly steaming with moisture kept up by pans of water set on the heating pipes, and quantities of wet moss around. They live on air and moisture, with as little of the grossness of the soil as serves to hold their opal tissues and transparent colors together. They bloom, when rightly cared for, as if they meant to exhale in blossom, and I have seen a basket of white *Cœlogyne cristata* from the Ames collection, at North Easton, that must have measured over a yard across, bearing two hundred exquisite drooping, bell-like blossoms on one plant. *Phalænopsis amabilis*, known as the Queen of Orchids, bears spikes two to four feet long, branching with flowers three inches across, of pearly whiteness, dashed with brilliant rosy crimson. It was for a specimen of this plant Lord LONDESBOROUGH paid \$500, to grace one of the finest collections of Orchids in England. One peerless white *Cattleya*, at the recent show was sold for over \$100 to Mr. KIMBALL, the Orchid amateur, of Rochester, N. Y., whose collection is one of the very finest in this country. Rarity and perfection of growth determine the cost of Orchids, though large

prices are often paid for some inferior looking, greenish-flowered plant, invaluable to complete a botanical arrangement. Cut Orchids sell from seventy-five cents to three dollars a single blossom in New York, a few sorts being as low as fifty cents; but experienced ladies say they prefer to pay double for Orchids for their beauty, perfume and lasting qualities, as they keep, when cut, three weeks and a month, if rooms are not too hot and dry. The flowers, vase and all, should be put under a bell-glass at night. They last admirably for the hair, or in the center of bouquets, but do not bear handling. For house and dinner decoration they are unrivaled. One of the most attractive things at the Orchid show was a table set for a "small" supper party, with all the fashionable trifles, salted Almonds, gilt Plums, and wafers tied up with pink satin ribbon, the center filled by a silver basket, nearly a yard across, of exquisite Orchids, with a wide fringe of Maidenhair and other choice drooping Ferns. A bouquet of Orchids and Ferns, tied with wide satin ribbon, lay on each plate, each tied with different color of ribbon. The only thing Orchids will not answer for in a floral way is to wear in the street. They do not like the cool weather, dust and drying sun. I cannot imagine any one taking pleasure from cut flowers of any sort, who can possibly command the delight of growing blossoming plants, overflowing with bloom and life.

SHIRLEY DARE.

CANTERBURY BELLS.

The following communication was received from Mr. PARNELL after the MAGAZINE went to press last month, and before it was issued. We give it now as supplementary to what we wrote last month on the same subject, and perhaps the slight difference in treatment here described may be best for some localities.

Under the popular name of Canterbury Bells we have *Campanula Medium* and its several varieties, which, when well grown, entitle it to rank as one of our finest hardy biennial plants. In order to do the plants justice, and to secure the most satisfactory results, every available means should be employed to secure strong, well grown plants, and, to effect this desired object, the seed should be sown at any time from the first of March until the middle of May. The seed should be sown very thinly in shallow boxes filled with light, turfy loam, and covered with a mere dusting of loam; water carefully, and place in a warm, moist situation close to the glass. As

soon as the plants are well up and strong enough to handle, they should be transferred to other boxes similarly prepared. Keep the young plants close and moist until they become well established and growth commences, then remove them to a cooler temperature, and grow on until the weather becomes warm and settled, they can then be transferred to a deep, well enriched border in a partially shaded situation, and placed in rows about ten inches apart each way. During the summer keep them well cultivated, and about the end of October take them up carefully and place in cold-frames for the winter. In the spring, as soon as the weather becomes settled, set out the plants where they are to flower, which should be in a partially shaded situation in a deep, well enriched border.

This *Campanula* is described as being hardy, but, as far as my experience has extended, I find that in most cases it is either destroyed or so severely injured by the winter weather as to be worthless for flowering purposes. When placed in cold-frames no such loss occurs, and the plants are not injured by removal. Of course, when placed in cold-frames great care should be taken to guard against damp, and to keep the plants in a dormant state, if possible, by giving an abundance of air at every convenient opportunity.

DOUBLE PETUNIAS.

Beautiful, fragrant, easily grown, suitable for either pot or garden culture; what more could a flower-lover ask for than is found in the Double Petunia? Making a beautiful show in the border, they are desirable also for cutting. Grow them once, flower-lover, and you will want to grow them ever after. Expensive? No, a packet of Double Petunia seeds cost little more than a packet of Aster or Verbena seed, and you'll get twice as many plants from the one as from the other. Of course, all of the seeds will not come double, but enough will to satisfy you, I am sure. After dividing my seeds with several friends, last spring, I grew out of those reserved for myself fifteen double ones. Not all were perfect, but some were fine enough to make up for lack in others. Petunias are more easily grown from seed than Verbenas or many other flowers, and the double ones deserve to be more commonly cultivated than they are.

A. C. F.

EXTENSION OF ROOTS.

As there is a general correspondence between the extension of the subterranean roots and the aerial tops of plants, we find the roots of vines stretching out to long distances, like their tops. On this account they like a light soil through which they can extend easily. But they can be accommodated just as well on

heavy soils, for there is nothing they like better than a surface rich in vegetable matter, as, for instance, a stretch of green sod. No matter how compact and hard this may be; if a blanket of chip mold, coal ashes, or even sand be spread over it to shelter them from wind, sun and light, and it retain moisture while they ramble over the sward in all directions, they will make their maximum of growth. In this way the roots luxuriate in the decaying sod and surface, the cream of the soil, and thus the finest of Melons, Cucumbers, Tomatoes or even Potatoes, can be grown without any previous digging of the soil. And Grape vines do nowhere so well as near a wood-house, hog-pen, or other building, where there is litter to shelter and feed the rambling roots, or where they can, at least, send their roots all round the foundations, while their leaves are basking in the double heat of the direct rays of the sun and of their reflection from the walls.

W.

TREES IN ENGLAND.

The surpassing beauty of English landscape is almost wholly due to the care which is given to trees, which are so numerous that the whole land seems embowered. House architecture there is decidedly inferior in beauty to ours. Wood is grown there in three different ways. Heavy timber is mostly grown in parks or lawns, more rarely in meadows or hedge rows, and the trees require a century or two to attain their utmost perfection of size and strength. Woods that are cut down every twenty-five or thirty years are called coppice, from the old Norman word, *coupés*, signifying cut. These woods are most carefully fenced against browsing animals, and serve to protect hares, pheasants and other game. Every stick and twig finds its use, and is salable for one purpose or another, and such woods form a very important item in the value of an estate. Thirdly, as stakes, &c., are continually wanted on every farm, there are always seen along hedge rows, near the buildings, a few old tree stems, about eight feet high, which are called pollards, because they are polled or topped every few years, each in its turn, to supply such rods, withes, stakes, kindling wood, &c. The topping is done neatly, so as to allow the next crop

of pollings fair issue, and to leave no dry snags to interfere with the next cutting. No fence is required for these pollard shoots, as they are wholly above the reach of cattle.

W.

MY FAVORITES.

My Fragrant Olive has been blooming steadily for six months, or ever since I procured it, filling our sitting-room with its delicious perfume.

What a plant is *Daphne Cneorum*! It is perfectly hardy, and continues in bloom for a number of weeks in the spring, and blooms again in the fall. Then it is as sweet as Trailing Arbutus and just as pretty in its way. It has lovely rosettes of clear pink flowers, and it spreads quite rapidly.

Another good pet of mine is the *Cyclamen Persicum*. Ours is white, and is now in bloom. Its fragrance is very delightful.

Some years ago we made our first Rose bed, and the earliest Rose to bloom therein was Aurora, which has been our prime favorite ever since, it has such staying qualities. It is always in bloom, and is a most vigorous grower. The flowers are of good size and of perfect shape; the color is an exquisite blush, and it is exceedingly sweet. Ours has stood four winters, and seems perfectly hardy, while with judicious pruning it has improved every year, and is sometimes the first to bloom in late May, and the last to go in early November. I have counted sixty Roses on it all blooming at once and all beautiful.

For a climber, I know none so good as Madame Alfred Carrière. We have one on a trellis, which is the same age as our Aurora. It is not such an abundant bloomer, but then I do not know any that is; yet the tree is covered in June with exquisite, large, creamy Roses, very double and fragrant, and after a rest it puts out again in August or September, with another shower of bloom, and giving a few flowers in between. And what a splendid growth it makes. Ours is twelve feet in height and very luxuriant.

Has any one who reads this, an old-fashioned garden, like ours, I wonder, with beds of Thyme and bee Balm, and hedges of white Lilac? Great clumps of *Yucca filamentosa* grow down the garden

walks, throwing up immense stalks of bell-like blossoms in July, which make the garden weird and ghostly on a moonlit night. Then, what an immense Persian Lilac we have at the door. It is a real tree, not a shrub, being fifteen feet in height. How one loves the dear old plants that one has always known and grown up with. As for us, our whole family goes into mourning on the demise of a venerable favorite. Honored relics of our forefathers; long may they wave in the breeze of many summers yet to come.

DANSKE DANDRIDGE, *Jefferson Co., W. Va.*

DICENTRA CANADENSIS.

Among our many early spring flowers there is none prettier or more graceful than *Dicentra Canadensis*. It grows in rich woods in nearly all the Northern States and as far south as Kentucky. Its finely cut, fern-like leaves of delicate



DICENTRA CANADENSIS.

green, and its racemes of oddly-shaped, nodding flowers, make it very attractive. The corolla is heart-shaped, and of a greenish-white color tinged with rose, and the flowers have a fragrance somewhat like that of the Hyacinth. The roots consist of small tubers, yellow in color, and resembling grains of Indian Corn, which fact has given it the common name of Squirrel Corn.

It is easily transplanted and takes kindly to cultivation, though it does not blossom quite as freely in the garden as in its native woods.

F. B.

NOTES AND EXTRACTS.

At the weekly meetings of the Massachusetts Horticultural Society during the past winter, some very interesting papers have been read. A few notes and extracts from these papers are here presented. At the meeting of February 5th, JOHN G. BARKER read a paper on "Ornamental Climbing Plants and how to use them."

"Among the climbing annuals we find many useful and beautiful plants. A familiar one is *Cobæa scandens* and its variegated variety. These will run from fifteen to thirty feet in a season, if the seed is sown in March in gentle heat, and transplanted to a four-inch pot, saving several weeks in spring.

"*Maurandias* usually grow about ten feet, and flower in great profusion. The essayist had seen a circle of Cedar poles placed in the ground and drawn together at the top, with *Maurandias* twining over them, which made a handsome center for a large bed."

Eccremocarpus longiflorus and *E. scabra*, *Thunbergias*, *Tropæolums*, *Lophospermums* and *Ipomœas* were recommended.

"*Physianthus albens* is one of the very best quick-growing climbers. The essayist described a plant which he had seen trained to a fence, and covering a space from four to six yards square, every joint being furnished with a raceme of pure white flowers. The large seed-vessels are said to be quite ornamental, and when ripe burst and expose a handful of cottony fiber, to which the seeds are attached.

"The plants of this class are not appreciated as they should be. They are well adapted for planting around arbors and along fences; in the latter case strings may be stretched from the top of the fence to pegs driven into the ground.

"Not a single wall or fence, especially if visible from the house—not a trunk of any old tree, or in fact any object that can be made capable of supporting a vine, should be left uncovered. The free use of climbing plants always imparts, wherever you meet them, on some lofty tree in the woods, or at the cemetery entrance, an air of friendship and freedom, and if they receive a larger share of skill and attention than has heretofore been given them, they will repay in beautiful

flowers and foliage and grateful shade the time spent in their cultivation.

"HENRY ROSS said that the best of all the Honeysuckles is *Lonicera Halleana*, which flowers freely and is very fragrant. *Bignonia atropurpurea* is better than *B. radicans*; it is perfectly hardy. A new species of *Ampelopsis*, *A. Engelmanni*, has been introduced, resembling the Virginia Creeper in habit, but clinging to walls almost as well as *Ampelopsis Veitchii*. It was discovered in Virginia. There is a house in Newton covered with the Virginia Creeper, which hangs down five or six feet and waves in the wind in the most graceful manner. On all wooden houses it is preferable to *Ampelopsis Veitchii*; for stone or brick the latter is better, but it must have protection till it gets established. It likes a somewhat shady place."

At the meeting of March 19th, FRANCIS H. APPLETON read a paper on the "Embellishment of Grounds with Trees."

"In regard to the size of trees to be planted, the experience of the essayist has resulted in the belief that it is best, as a rule, to set out comparatively small trees—say not over four or five feet high—for evergreens, and to use a considerably greater number than will eventually be needed, in order that they shall give mutual protection until they become well established. Deciduous trees, whose branches can be trimmed in so as to bear a proper proportion to the roots, may be planted from six to eight feet high. Shrubs and vines are best with small tops and ample roots. When there is any question as to the size of a tree, it is best to use the smaller, which will have a greater chance of success.

"Ornamental planting must be adapted to the conformation of the land and the uses to which it is to be put, so as to increase its natural beauty, forming vistas which shall add to the landscape effect, and scenes which no human artist can reproduce.

"Too many do not plant trees who could perfectly well do so, because of the old excuse that they grow so slowly and will not benefit the planter. Such persons should recall the grateful shade of many a fine tree planted in their own or a former generation which they have enjoyed. Let this, combined with the charming landscape picture seen through

a frame of foliage, planted perhaps by an ancestor, stimulate them to go and do likewise. Will they not recognize that while they reap benefits from those who have planted before them, they can well plant for those who come after!"

A large list of hardy desirable trees was mentioned. The following in regard to the Oaks:

"*Quercus alba*, White Oak; is one of the finest park trees, good for timber and firewood; very durable; and might (besides planting alone) be planted amongst groves of Pines, to come on as second crop after the Pines are cut away. In fact, this could be said of all the Oaks

"*Quercus rubra*, Red Oak.

"*Quercus tinctoria*, Yellow Oak.

"*Quercus coccinea*, Yellow-barked Oak.

"These all do well on light soils, though not as valuable as the White Oak; but are of much more rapid growth. Nothing is more beautiful than *Quercus coccinea* for ornamental planting, and its autumn coloring is far more beautiful than that of most other Oaks.

"*Quercus palustris*, Pin Oak; though naturally fond of moist situations, is a tree of most rapid growth, and of beautiful form, and will adapt itself to almost any situation; trees planted from the seed-box on a hillside, without any preparation, ten years ago, are to-day fine specimens, ten or twelve feet high, and of fine form. This would make an excellent street tree. An avenue of these, planted at Flushing, L. I., by S. B. PARSONS, some twenty or twenty-five years ago, is the finest avenue of Oaks on Long Island.

"*Pinus*. Of the Pine family nothing is so well adapted to the worn-out soils of New England as *Pinus strobus*, White Pine, and nothing will so well repay in a few years the labor required in planting and care; usually it will make a good-sized tree for wood and box-boards in twenty to twenty-five years. It is easily transplanted, but a little difficult to grow from seed by amateur cultivation; but there are many farms in New England where there are groves of Pines and where thousands of growing seedlings, from six inches to a foot in height, can be found. If a few thousands of these were collected each year and planted thick in nursery rows, for one year, the following season they could be trans-

planted in pasture or prepared ground, four or five feet apart each way, after which they would require but very little care and would soon repay the planter in fine groves of Pines."

CATTLEYA TRIANÆ.

The numerous species of *Cattleya* form a group of Orchids which is particularly prominent and interesting. Most of the species are profuse bloomers and all have showy, handsome flowers. There is such a variation in their time of blooming that with a suitable selection of species a continuous display of Orchids through the whole year could be kept up with this one genus only. These plants will prove satisfactory in the hands of amateurs, in the greenhouse, if suitably



CATTLEYA TRIANÆ.

attended to. A temperature of 60° to 65° in winter will suit them. *C. Trianæ* is a very handsome species, with flowers measuring about six inches across, the general color blush or lilac, with a rosy-purple lip, and a throat with a shade of orange. A good exposure to the light is needed, and the admission of air to the house frequently when it can be done

safely. In watering, wetting of the foliage should be avoided, as it is apt to discolor the leaves. A mixture of fibrous peat, and sphagnum, or wood moss and small bits of charcoal make a suitable compost, but the plants do not need much soil, and should have good drainage. Loose frames, as pots or baskets, are much better than earthenware pots. Only a moderate amount of water is usually required, but when the flower buds begin to push, it should be supplied freely. After growth has ceased, the plants should be kept drier, and be given the coolest part of the house.

POTATO FERTILIZERS.

An experiment with different fertilizers on Potatoes was conducted last year at the Agricultural Experiment Station at the State College of Kentucky. Conclusions arrived at are:

1. That the application of stable manure greatly injures the quality of the Potato.
2. That the application of the nitrate of soda is injurious to the quality of the Potato. This will probably hold good to the application of any nitrogenous fertilizer.
3. The inference is, based upon one trial, that the result in the quality of the Potato is the same, whether sulphate or muriate of potash is used, at least in combination with nitrate of soda and superphosphates.

The highest quality, that is, the highest per centage of starch, was found in Potatoes raised without manure; in these the per centage of starch was 15.98. Tubers raised with superphosphate of lime and sulphate of potash stood next, the starch being 15.97. This fertilizer, 600 pounds of superphosphate and 200 pounds sulphate of potash, also gave the largest yield but one of large Potatoes, 203 bushels to the acre. The use of superphosphate in the same quantity and 300 pounds of nitrate of soda gave 213 bushels of large Potatoes, but the per centage of starch in the last was only 15.13. One and a half tons of stable manure to the acre gave 170 bushels of large tubers with a starch per centage of 14.65. The yield with no manure was 138 bushels of large tubers.

These conclusions agree with other experiments, and may be further confirmed.

GARDEN WORK FOR MAY.

All through the North, this is the great planting month of the year. In favorable localities much has already been done in the garden, but in others it is yet untouched. At this time, the 20th of April, there is reported four and five feet of snow in the forests of Vermont and New Hampshire and northward. But the warm weather which must now come will call out the buds everywhere.

The seeds of annual flowering plants can now be sowed, hardy ones in the open ground, those somewhat tender in the cold-frames, to be transplanted the latter part of the month. Plants of Balsams and Asters that have already been started should not be allowed to grow too close, but be pricked out so they will have plenty of light and air, to grow stocky, and be ready for final planting out the last of the month.

Herbaceous plants of nearly all kinds can now be moved. Roses and shrubs can be transplanted. Roses that have not been pruned can now be cut back.

Lilies and Gladiolus bulbs can be planted all through the month, but the earlier the better, locality and soil, however, being considered. In the latter part of the month, when the soil has become warm, Dahlias and Caladium bulbs can be planted; a rich and deep soil is needed for both.

This month is the most favorable time for transplanting Evergreens. They move best when their buds are beginning to swell. Care should be taken to remove the roots without much injury, and not allow them to dry. Allowing the roots to become dry and moving too early in the season are the two causes which operate most disastrously in moving Evergreens.

In the latter part of the month, in many parts of the country, bedding plants and other tender plants can be put out. In the colder regions this work must be delayed until June. In the kitchen garden the tender vegetables will receive attention. Cucumbers, Melons, Corn and Beans may be planted, and Tomatoes, Peppers, Egg Plants, and other tender vegetables that have been brought forward in hot-beds and cold-frames should be transplanted. In putting out all kinds of tender vegetables it is well to hold a portion in reserve for a second planting, and

to be prepared for protection if frost should threaten.

Celery plants from seed sown last month can be pricked out separately into a rich bed to make a strong growth preparatory to a final planting the last of next month, and new sowings in the open ground can be made.

The early vegetables, such as Cabbage, Peas, Onions, &c., should be hoed frequently enough to keep them growing freely. The weeding of Onion beds should not be neglected, clean cultivation is the key to success.

HINTS ON WINDOW GARDENING.

I have often heard the remark among professional gardeners, speaking of a certain plant not very well known to the person addressed, "give it rather a wet than a dry treatment," or *vice versa*, and such a hint to one having a fairly good general knowledge of the requirements of plants is usually sufficient.

Take, for instance, Cacti, Echeveria, Sempervivums, and all succulent plants, together with the Hoyas, Geraniums, Oxalises, and nearly all bulbs, and although they will all take an abundance of water when growing freely, if properly drained, yet it may be said of them in a general way that they require a treatment inclining rather to dry than wet, and will succeed in a dry atmosphere.

Again, take Ferns, Selaginellas, Pandanus, Palms, Dracænas, Fuchsias, Heliotropes, Vinca major variegata, Marantas, Caladiums, Callas, and they require rather a wet than a dry treatment, and to succeed well must have a moist atmosphere. Of course, when partially resting, Fuchsias and Heliotropes require very little water and to be kept cool. Caladiums and Callas, when growth ceases, need a rest and to be kept dry. The first named should be kept warm also, not below 50° Fahrenheit. But I am speaking at present of the treatment of plants when growing, rather than resting. Moisture-loving plants would be much benefitted if a zinc tray the size of the window or table, and two or three inches deep could be used, so that fresh growing moss could be neatly filled in between the pots and kept sprinkled more or less frequently, according to the state of the weather and the time of the year. In spring and fall with mild, cloudy

weather, and not much stove or furnace heat in-doors, once a day would keep the moss growing. With more fire heat, or in hot summer weather, three or four times a day would be necessary.

As to soils for window plants, the majority of those I have named, and most others, do well in the compost recommended for Lilies in pots in the January number of the MAGAZINE. For Cacti, all succulents proper, and Hoyas, I always break up some charcoal and old mortar and mix with the soil.

I very often have would-be plant growers confess to me that they like to see beautiful flowers, and would be glad to have some always in their windows, if they would grow without much attention.

Now, what CANON HOLE says to the Rose grower — "He that would have beautiful Roses in his garden must have beautiful Roses in his heart," — will apply to window gardeners. We must, to be successful have them at heart. Then we shall take pains to keep informed as to their various wants. I am pretty sure that a knowledge of principles is what most persons require. This is to be obtained by reading what successful cultivators are all the time telling in the horticultural magazines.

We shall have more accounts of successes with plants, and fewer complaints of bad results when all of us endeavor to treat our window plants as fellow creatures, for so they are; and will repay richly whatever watchful care they need. From five to ten minutes every day ought

to take care of a good window full of plants. Who would not be willing to give that?
JAMES BISHOP.

ARIZONA FOR FRUIT.

It is claimed that the Salt River Valley and the Gila Valley, in Arizona, will, in time, be covered with orchards and vineyards. A writer in the *Pacific Fruit Grower* says that "the first Apricots ripen from the first to the tenth of May, and the other sorts come in regular succession until the season closes, about the middle of June. Peaches last from May to December. Grapes are done by the time they are ready for drying or the wine-press in California. It is safe to say that the fruit season is two weeks earlier at Phoenix than in Los Angeles, and a month earlier at Yuma." The air is so dry that no fruit dryers are needed, the sun furnishing all the heat required for drying fruit in the best condition.

CALIFORNIA VINEYARDS.

The phylloxera appears to be spreading in the California vineyards. There is a hope on the part of some that some varieties will prove resistant, while others believe that all the vinifera varieties will eventually succumb to this insect. Vines of the Riparia class are now being planted, as they are truly resistant of the phylloxera, and are grafted at two years of age. This is, undoubtedly, the true course to pursue, and new vineyards will probably be started in this manner.



OUR YOUNG PEOPLE.

WHICH IS THE BRUTE ?

There was a circus show in town. Uncle Cyrus, on the piazza, stopped reading his paper to watch the medley of circus-goers driving homeward. In truth, he was looking more at the horses than at the people, though he looked at both comparatively, for if he noticed an ill-kept, jaded-looking horse, his second glance was fixed upon the driver as the person probably responsible for the animal's condition, and his private opinion of that personage was not to be envied. On this occasion he was well wrought up and ready for free expression, when his nephew entered the gate and joined him.

"John," said he, "I believe no other country in the world is disgraced by so many half-starved, worn out horses as we have. The comparatively independent condition of the lower classes here enables almost any brute of a man to become owner of a horse."

"Why, Uncle," answered John, "you surprise me ; I thought we had the finest horses in the world. You ought to have seen those at the show, to-day. One of them, a pure white one, I shall never forget. He was a superb creature, perfect from nostril to fetlock. He mounted a block for a pedestal, and rearing up on his hind feet drew his knees up against his breast and dropped his fore feet pendant, remaining as motionless as a marble statue, which he certainly simulated to perfection. I'm sure I scarcely breathed as I noted by his outline against the background that he held his position without swaying in the least, and remained utterly motionless until a word and a touch from his master brought him down. Then, when the crowd cheered, he turned and bowed his thanks repeatedly, like any other gentleman."

"Yes, that's Dan Rice's pet horse—I'm glad you've seen him pose. It is, indeed, something to remember. And yet, John, that 'superb' creature, as you call him, with his regal carriage of head and neck, his perfect symmetry of body and limb, his leonine strength tempered by the gen-

tleness of a lamb, all coupled with his intelligence and aptness for instruction, is nothing, after all, but a horse. And that creature going by, this moment—look, John, look ! that's a horse, too."

John turned and saw a bony, ungainly, sag-backed animal, whose hobbling pretense at travel resolved itself into a series of up and down motions that seemed an almost futile attempt to get forward, while the sole incentive to any motion at all was evidently the Crab Apple stick that mercilessly goaded him from behind. As John glanced from the house to the shaky old wagon and its nondescript occupants, he could but smile at the picture.

"Don't vex me, John, by smiling at such a sight as that. No other animal is subjected to treatment that produces such contrasts of condition and appearance as we constantly see in the horse. And yet no other animal renders us such service. It exasperates me."

"I was only smiling to think how keenly cousin Sally would enjoy taking a sketch of that turn-out."

"O, yes, of course. She says if such things must exist, she wants to see them ; has a mania for sketching the lowest extremes of life. But I'll give her a sketch, directly, that will satisfy her in that line. Now, as a point of fact, John, consider for a moment how nearly alike all young colts really are. Of course, there are 'points' that distinguish the 'thorough-breds,' and which have been coarsely compared to the corresponding points admired in women—small feet, slender ankles and neck, small, shapely head and ears, and thin, dilating nostrils. But aside from these slight distinctions, there is little difference to be noticed in young horses as to activity and spirit. They are all equally susceptible of keen enjoyment as they curvet over the meadows, or toss their manes and heels in frolic with their fellows.

"Now, John, this ability to *enjoy life* should never be destroyed by over-work, by scanty feeding, nor by rough treat-

ment and exposure. They always earn more for us than they ever get in return, and why should we begrudge—?

"Hold on, there!" called out Uncle Cyrus at this juncture, throwing up his hand and hurrying out, bare-headed, to a forlorn-looking beast with tongue lolling out of his mouth, driven by a brutal-looking man. Grasping the bit, he turned the horse toward the pavement and held him there while calling to John to bring a bucket of water quickly.

"See yer," said the irate driver, "you let go o' that there bit, an' mind yer own business. I kin take keer o' me own hoss."

"Since you *don't* take care of it, it's my business just now to help you. This poor creature is not only nearly starved, but suffering cruelly, this moment, with thirst. Water is plentiful and costs nothing. We've no *right* to deprive an animal of his freedom so that he can't help himself, unless we supply him with all he needs. This horse may be yours to use, but not to abuse. Did you ever think of that?"

"Stop your gab, an' let go that hoss."

"All in good time. Here comes the water. You'll never get a hostler who works cheaper than I do. I'd like to stable your horse and fill him up for once with Corn and sweet hay."

Then the man growled out: "The critter's teeth is wore down so he kaint chaw his Corn, no how."

"Then soak it," rejoined Uncle Cyrus, "or give him meal instead." Then, with upraised finger, "Listen! don't starve a beast that is serving you so long as you can raise money for a circus show. Good day."

This sort of aggressive interference in behalf of abused horses was a characteristic of "Uncle Cy," as he was called by the town boys, and they often bobbed their heads in an amused way when they saw him thus engaged, as much as to say, "Uncle Cy is at it again," but not one of them would willingly have let the kind hearted man see him strike a horse. So Uncle Cy was doing more good than he knew. Once, however, in a spirit of mischief, some of the boys had put their heads together and written an advertisement which they appended to his front door one moonless night. It read as follows:

FOR SALE.—One good conditioned clothes

horse, 18 hands high, with fine, bushy, clothes-line tail and heavy mane. First-class pedigree, can be clearly traced back to Patent Office, Washington, D. C. Not yet broken to the saddle, and might prove balky in double team, but is good to bear burdens, and makes a valuable pack horse. (Purchaser is hereby warned against *over-lading* him.) Is perfectly sound, never having had the botts, poll-evil, ring-bone, string-halt nor spavin. Was never foundered but once, caused then by his being given a double measure of clothes-pins at one feed, by mistake.

N. B.—The pins should always be chopped and then soaked.

Uncle Cyrus had laughed heartily when he read this queer composition, saying to himself, "I s'pose the boys had a lot of fun getting this up. Glad they understand I wouldn't abuse even a clothes-horse. Ha, ha."

But to return to John. When he announced that he must hurry off home, his Uncle had purposely allowed him to get out his own horse unattended, and awaited the result. To John's amazement he found the best stall occupied by the most abject, bare-boned skeleton of a horse he had ever yet seen. He could not have imagined anything so gaunt and emaciated with life enough left to stand up. There were hollows on either side of the back, next the haunches, that he judged would hold a tea-cup of water, and he thought he could stand up eggs in the cavities just above the eyes. As John, dumbfounded, watched the creature eating a moist mixture of finely chopped hay and meal, he seriously wondered if his Uncle had become demented on the subject of abused and worn-out horses. Finally, leading his own out, he met his Uncle and a photographer with his camera.

"John, how do you like my last purchase?" inquired Uncle Cyrus, with a twinkle in his eyes.

"I hope you did not *buy* that rack-a-bones. I thought you must have dug him out of a gutter, and had him hauled here and then held him up with props till he got to eating."

"O, no; 'twasn't just that way. Some gypsies came to the show, and two or three of those scalawag-tramps that are trying to get in with them, but whom the gypsies despise, were in their wake, and one of them was leading this beast. He said, when questioned, that he thought he could sell it to a darkey. He wanted five dollars for it, but took two and a half. I'm going to have his picture taken



A MESSENGER BIRD.

now for Sally, and shall feed him up and give him good care for three or four months, and then get another one taken, and see for myself how much neglect and abuse have to do with his present condition.

"Wish you much success in your experiment, Uncle; good-bye," said John, as he mounted his horse and rode away.

Approaching home, John stopped to expostulate with his father's new teamster, hired to take the place of the sick one. His wagon having been heavily loaded while standing on soft, mushy ground, he was belaboring the stalwart horses because they were unable to start the sunken wheels from their ruts. But the angry man would not listen to him.

Then, noticing the doctor's vehicle at the sick man's door, he called to inquire his condition, for he was lying very ill. He found the doctor trying in vain to quiet the poor fellow, who was in a paroxysm of excitement.

"Just listen!" he cried, as he raised on one elbow, and, groaning, fell back

helplessly. "Listen at that wretch beating an' cussin' my horses. They haint had a cross word, nor a lick, these three years. Oh!" and he twinged all over as though hit himself, "just hear that! No, I can't keep quiet. Them horses'll be—ruined before—I can get out to 'em ag'in. Jerry's so high-spirited—he wont bear that sort—he'll kick hisself free—directly. An' Jack—wont pull a bit—if he's angered. An there's Tom an' Coaley—so willing—from the word 'go.' No, no, Doctor; I can't swallow that. Good God!—why don't—somebody—go—out—there," gasped the poor man.

John—dolefully wishing that grand juries could be made up without his father when he was so much needed at home—motioned to the doctor, who went out and ordered the fellow to be silent. Returning, he found the humane, kind-hearted teamster quite beyond knowing any longer how it fared with his horses; while John said to himself, "Here was a man after Uncle Cyrus' own heart."

MARIA BARRETT BUTLER.

PIGEONS.

What pretty looking little things they are as they walk about, now and then stooping their pretty heads to pick up something which may tempt their appetites, and they are equally as pretty on the wing, for their flight is very graceful. Their feet are formed for both walking and perching, their wings are long and pointed, the tail of moderate length and square.

They love to eat Corn and seeds of various kinds, and will often do considerable mischief in a corn-field. In a wild state they are of a bluish gray color with a mixture of green and purple, a metallic sort of coloring which changes with the movements of the bird. Across the wings are two stripes of black, and the legs and feet are of orange red. The size of the birds in a wild state is generally about twelve inches from the bill tip to the end of the tail. The birds, whether wild or domesticated, are very delicate for food.

There are many kinds of pigeons of fancy breeds, such as the Fan-tailed Shaker, the Tumbler, and the Pouter, besides many others and the very inter-

esting Carrier or Homing pigeons, which have often been used to carry messages from a besieged city to some point with which communication has been desired, and the little messengers have proved themselves of invaluable service to those who trusted them.

The dove and the pigeon are said to be closely allied, and there is an Arabic legend which tells that when the dove returned to the ark, her feet covered with red clay, that Noah was so happy at once again beholding the earth that he prayed the legs of the bird might ever after be red, which color they are whether the legend be true or not.

It is said that one Carrier pigeon traveled two hundred and forty-eight miles in nearly as many minutes, safely bearing the message entrusted to its care. The messages or letters are generally fastened beneath the quill feathers in the tail, and thus easily carried by the bird.

Thus we see that the little pigeons, which are so familiar to every one, are of service for food, and prove themselves also, curious little letter carriers.

M. E. WHITTEMORE.